

AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Boulder, Colorado 80537-0599

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): John F. Corson

Serial No.: 10/066,157

Examiner: Samuel P. Siefke

Filing Date: January 31, 2002

Group Art Unit: 1743

Title: CALIBRATING ARRAY SCANNERS

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Sir:

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on October 14, 2005.

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) **\$500.00**.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)(1)-(5)) for the total number of months checked below:

| | | |
|--------------------------|--------------|-----------|
| <input type="checkbox"/> | one month | \$ 120.00 |
| <input type="checkbox"/> | two months | \$ 450.00 |
| <input type="checkbox"/> | three months | \$1020.00 |
| <input type="checkbox"/> | four months | \$1590.00 |

☐ The extension fee has already been filled in this application.

☐ (b) Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account **50-1078** the sum of \$500.00. At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account **50-1078** pursuant to 37 CFR 1.25.

A duplicate copy of this transmittal letter is enclosed.

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Date of Facsimile:

Typed Name: Donna Macedo

Signatures: Donna Macedo

Respectfully submitted,

John F. Corson

By Bret E. Field

Bret E. Field for Dianne Rees
Attorney/Agent for Applicant(s)

Reg. No. 37,620

Date: 12-13-2005

Telephone No. (650) 485-5999



Express Mail No.

EV68763386105

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| APPELLANT'S BRIEF Address to: Mail Stop Appeal Brief-Patents Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450 | Application Number | 10/066,157 |
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| | First Named Inventor | John F. Corson |
| | Examiner | Samuel P. Siefke |
| | Group Art | 1743 |
| Title: <i>Calibrating Array Scanners</i> | | |

Sir:

This Brief is filed in support of Appellant's appeal from the Examiner's Rejection dated June 15, 2005. No claims have been allowed and Claims 15-21, 27, 29, 30, and 33-48 are pending. Claims 15-21, 27, 29, 30, and 33-48 are appealed. A Notice of Appeal was filed on October 14, 2005. As such, this Appeal Brief is timely filed.

The Board of Appeals and Interferences has jurisdiction over this appeal pursuant to 35 U.S.C. §134.

The Commissioner is hereby authorized to charge deposit account number 50-1078, order no. 10010382-1 to cover the fee required under 37 C.F.R. §1.17(c) for filing Appellant's brief. In the unlikely event that the fee transmittal or other papers are separated from this document and/or other fees or relief are required, Appellant petitions for such relief, including extensions of time, and authorize the Commissioner to charge any fees under 37 C.F.R. §§ 1.16, 1.17 and 1.21 which may be required by this paper, or to credit any overpayment, to deposit account number 50-1078, order no. 10010382-1.

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REAL PARTY IN INTEREST

The inventor named on this patent application assigned his entire rights to the invention to Agilent Technologies, Inc.

RELATED APPEALS AND INTERFERENCES

There are currently no other appeals or interferences known to Appellant, the undersigned Appellant's representative, or the assignee to whom the inventor assigned his rights in the instant case, which would directly affect or be directly affected by, or have a bearing on the Board's decision in the instant appeal.

STATUS OF CLAIMS

The present application was filed on January 31, 2002 with Claims 1-32. During the course of prosecution, Claims 1-14, 22-26, 28, and 31-32 were canceled and Claims 33-48 have been added. Accordingly, Claims 15-21, 27, 29-30, and 33-48 are pending and stand rejected in the present application, all of which are appealed herein.

STATUS OF AMENDMENTS

Amendments to the claims were filed subsequent to issuance of the Final Rejection on August 31, 2005. For purposes of appeal, the proposed amendments were entered.

SUMMARY OF CLAIMED SUBJECT MATTER

The claimed invention is drawn to methods of using a chemical array reader. The method employs a calibration member having a uniform fluorescent layer to calibrate a chemical array reader for subsequent scanning of a chemical array.

Below is a description of each appealed claim and where support for each can be found in the specification.

Independent Claim 15 claims a method of using a chemical array reader having a holder to mount an array and hold the array at a reading position; a light system to illuminate a mounted array when at a reading position; a detection system having a focal plane, to detect light from different regions across the array emitted in response to the illumination, when at the reading position, and which generates a

resulting signal for each of the regions across the array; (see specification at page 3, lines 9-16), and an autofocus system which detects and reduces offset between the different regions of an array at the reading position and a determined position of the focal plane; (see specification at page 3, lines 17-24). The method comprises a) positioning a calibration member having a uniform fluorescent layer at the reading position so as to receive illumination from the light system and emit light in response thereto, which emitted light is detected by the detection system to generate a resulting calibration signal; (see specification at page 4, lines 24-28 and page 12, line 15), b) adjusting a position of the calibration member, when in the reading position, relative to the focal plane; (see specification at page 3, lines 18- 21), c) determining the position of the focal plane from the light detected at various adjustments; (see specification at page 4, lines 29-30), d) calibrating a sensitivity of the detection system from the detection system signals generated from the calibration member; (see specification at page 4, lines 9-11).

Claim 16 depends from Claim 15 wherein the focal position is determined based on a variation in detected light amplitude from the same region of the calibration member or from multiple regions of the calibration member from which the detected light is the same when at the focal plane, which variation results from the adjustment of the calibration member relative to the focal plane, (see specification at page 4, lines 3-8).

Claim 17 depends from Claim 16 wherein the emitted light is the same for each of the detected regions of the calibration member; (see specification at page 4, lines 13-16).

Claim 18 depends from Claim 15 wherein the position of the calibration member and the holder, relative to the focal plane, are simultaneously adjusted; (see specification at page 3, lines 9 and 18-20).

Claim 19 depends from Claim 15 wherein the detection system detects light at multiple wavelengths from the calibration member or array, when either is at the reading position, and generates a resulting signal for each of multiple detected wavelengths for a region of the calibration member and each of the regions across the array; (see specification at page 3, line 30- page 4, line 2), and wherein the method comprises positioning a calibration member in (a) which emits light at the multiple wavelengths in

response to illumination from the light system; (see specification at page 4, lines 1-2 and 26-28).

Claim 20 depends from Claim 15 wherein the light system illuminates a region and the detection system detects from a region, and the reader additionally comprises a scan system which simultaneously scans the illuminated and detected regions across the different regions of the array when at the reading position; (see specification at page 4, lines 17-20).

Claim 21 depends from Claim 20 wherein the scan system additionally scans the illuminated and detected regions across different regions of the calibration member when at the reading position, such that the detection system generates resulting signals for each of the different regions across the calibration member; (see specification at page 4, lines 20-23), which are used to determine the focal plane position; (see specification at page 4, lines 29-30).

Claim 27 depends from Claim 15 wherein the method further comprises reading an array by positioning the array at the reading position such that the detection system detects light from different regions across the array emitted in response to the illumination, and generates a resulting signal for each of the regions across the array; (see specification at page 3, line 30 – page 4, line 2).

Claim 29 depends from Claim 27 wherein the data is communicated to a remote location; (see specification at page 16, lines 22-23).

Independent Claim 30 claims a method comprising receiving data representing a result of a reading obtained by the method of Claim 27; (see specification at page 16, lines 16-23).

Claim 33 depends from Claim 15 wherein the uniform fluorescent layer of the calibration member is positioned coplanar to the light emitting regions across the array; (see specification at page 12, lines 19-21).

Claim 34 depends from Claim 33 wherein the calibration member comprises a substrate that is the same as that of the array; (see specification at page 12, lines 22-23).

Claim 35 depends from Claim 34 wherein the calibration member substrate is positioned coplanar to the array substrate; (see specification at page 12, lines 22-23).

Claim 36 depends from Claim 15 wherein the uniform fluorescent layer of the calibration member is the same thickness as the light emitting regions across the array; (see specification at page 12, lines 15-17).

Claim 37 depends from Claim 15 wherein the uniform fluorescent layer of the calibration member comprises more than one fluorescent dye; (see specification at page 12, lines 25-26).

Claim 38 depends from Claim 37 wherein the uniform fluorescent layer of the calibration member comprises the fluorescent dyes Cy3 and Cy5; (see specification at page 12, lines 25-26).

Independent Claim 39 claims a method of using a chemical array reader, the method comprises: a) providing a calibration member comprising a substrate with at least one calibrating region thereon; (see specification at page 3, lines 12-13; and page 12, lines 20-23), b) providing a chemical array comprising a substrate with at least one chemical feature region thereon; (see specification at page 8, lines 20-26), c) calibrating the chemical array reader using the calibration member by a method comprising:

- i) positioning the calibration member at a reading position of the chemical array reader; ii) illuminating the calibration member with light from a light system of the chemical array reader; iii) detecting light emitted from the calibration member in response to the illuminating light with a detection system of the chemical array reader to generate a resulting calibration signal; iv) adjusting the position of the calibration member relative to the detection system; v) repeating steps (ii) to (iv) until a focal plane of the detection system can be determined from the calibration signals generated at various adjustments; (see specification at page 4, lines 25-30 and page 15, lines 12-13), and vi) calibrating at least one sensitivity setting of the detection system from the calibration signals generated from the calibration member when positioned at the focal plane of the detection system; (see specification at page 15, lines 24-28), and
- d) reading the chemical array using the calibrated chemical array reader by the method comprising:

- i) positioning the chemical array at the focal plane of the detection system;
- ii) detecting light emitted from different regions across the chemical array

in response to illuminating the chemical array with light from the light system; and iii) generating a resulting data signal for each of the detected regions across the array; (see specification at page 16, lines 9-15).

Claim 40 depends from Claim 39 wherein the calibrating region of the calibration member is positioned coplanar to the chemical feature region on the chemical array; (see specification at page 12, lines 19-21).

Claim 41 depends from Claim 39 wherein the calibration member comprises a substrate that is the same as that of the chemical array; (see specification at page 12, lines 22-23).

Claim 42 depends from Claim 39 wherein the calibration member substrate is positioned coplanar to the array substrate; (see specification at page 12, lines 22-23).

Claim 43 depends from Claim 39 wherein the calibrating region on the calibration member comprises a uniform fluorescent layer; (see specification at page 12, line 15).

Claim 44 depends from Claim 43 wherein the uniform fluorescent layer of the calibration member is the same thickness as the chemical feature region on the array; (see specification at page 12, lines 15-17).

Claim 45 depends from Claim 43 wherein the uniform fluorescent layer of the calibration member comprises more than one fluorescent dye; (see specification at page 12, lines 25-26).

Claim 46 depends from Claim 45 wherein the uniform fluorescent layer of the calibration member comprises the fluorescent dyes Cy3 and Cy5; (see specification at page 12, lines 25-26).

Claim 47 depends from Claim 39 wherein the data is communicated to a remote location; (see specification at page 16, lines 22-23).

Independent Claim 48 claims a method comprising receiving data representing a result of a reading obtained by the method of Claim 39; (see specification at page 16, lines 16-23).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

- I. Claims 15-21, 27, 29-30, 33-37, 39-45 and 47-48 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Overbeck (WO 99/47964).
- II. Claims 38 and 46 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Overbeck (WO 99/47964) and further in view of King et al. (US 5,812,272).

ARGUMENT

- I. Claims 15-21, 27, 29-30, 33-37, 39-45 and 47-48 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Overbeck et al. (WO 99/47964).

In the Final Office Action, the Examiner maintains the rejection of Claims 15-21, 27, 29, 30, 33-37, 39-45 and 47-48 as allegedly being unpatentable over Overbeck (WO 99/47964).

With respect to rejections made under 35 U.S.C. § 103, the MPEP at § 2142 states the following:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. **Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)(emphasis added).

It is respectfully submitted that the Examiner's *prima facie* case of obviousness is deficient because the teachings of the cited prior art fail to teach or suggest all the claim limitations of the rejected claims. Below are the contentions of the Appellant with respect to the grounds of rejection made by the Examiner.

The claims are argued in groups below as indicated by each separate heading. For reasons of clarity, the claims are not discussed in numerical order.

Claims 39-42

Independent Claim 39 and the claims which depend therefrom are directed to methods of using a chemical array reader, which utilizes a calibration member to calibrate the chemical array reader. The calibration member is illuminated and the light emitted therefrom is detected to generate a calibration signal which is used to determine the focal plane. Once the focal plane has been determined, at least one sensitivity setting of the detection system is calibrated from the calibration signals generated from the calibration member when positioned at the focal plane of the detection system..

As set forth below, the Appellant maintains that Overbeck fails to teach each and every element of the present invention. Specifically, Overbeck fails to teach the element of the Appellant's invention wherein at least one sensitivity setting of the detection system is calibrated from the calibration signals generated from the calibration member when positioned at the focal plane of the detection system.

In the Advisory Action dated September 30, 2005, the Examiner asserts the following:

Overbeck on page 30 recites, During the examination scan the microscope slide is held on its support in exactly the same position it occupied in the prescan. And goes on to say, the position of the microscope slide is continually adjusted by focus mechanisms based upon the stored prescan data for pitch and bow. This in itself teaches a calibration member being adjusted for best focus (sensitivity) (p. 2) (emphasis added).

It appears that the Examiner is relying on the step of pre-scanning a microscope slide to be the equivalent of calibrating at least one sensitivity setting of the detection system from the calibration signals generated from the calibration member. However, pre-scanning a microscope slide to adjust for best focus is very different from calibrating at least one sensitivity setting as claimed in Appellant's invention.

Overbeck is merely describing a method of pre-scanning a slide prior to the actual experimental reading of the same slide. According to Overbeck's specification, this allows the user to define the scan region and adjust the pitch and bow for optimum

focusing. In other words, by pre-scanning the slide itself, the operator is able to determine the regions of the microscope slide which require optimization and then adjust accordingly. As such, Overbeck is optimizing the focusing conditions with respect to the microscope slide itself.

In contrast, the claimed invention specifies that at least one sensitivity of the detection system is calibrated from the calibration signals generated from the calibration member. As provided in the instant specification:

The average maximum signal for each channel can then be used to calibrate the detection system sensitivity in the corresponding channel since calibration member should yield the same signal in a channel over time. This method of calibrating the scanner accounts for changes in signal due to changes of any part of the system: detector sensitivity, alignment of the illumination optics, alignment of the detection optics, deterioration of any optical components (p. 15, lines 26-31) (emphasis added).

As such, at least one sensitivity setting of the detection system is calibrated, which determines whether the detection system components are properly functioning. This has nothing to do with optimizing the focusing parameters of the slide itself, as in Overbeck's disclosure.

Because the teachings of Overbeck fail to teach or suggest each and every element of the claimed invention, namely calibrating at least one sensitivity of the detection system from calibration signals generated from a calibration member, the Appellant submits that a *prima facie* case of obviousness has not been established for Claims 39-42.

Claims 15-16, 18-21, 27, 33-37 and 43-45

Independent Claim 15 is drawn to methods of using a chemical array reader. Claims 16, 18-21, 27, and 33-37 directly or indirectly depend on Claim 15. Claims 43-45 directly or indirectly depend from independent Claim 39 (discussed above).

As set forth above, Overbeck fails to teach or suggest calibrating at least one sensitivity of the detection system from the calibration signals generated from the calibration member. As Claims 15-16, 18-21, 27, 33-37 and 43-45 also include this

limitation, the Appellant contends that these claims are likewise patentable over Overbeck.

In addition, Claims 15-16, 18-21, 27, 33-37 and 43-45 are further distinguishable over Overbeck because they specify that the calibration member has a a uniform fluorescent layer. The Appellant submits that the Examiner has provided no citation in Overbeck that teaches or suggests a calibration member having a uniform fluorescent layer. Indeed, the pre-scanning disclosed by Overbeck is of the slide itself (which is comprised of unevenly distributed fluorescent moieties, e.g., fluorescent probes associated with the features of the array) and not of a calibration member with a uniform fluorescent layer. As described by Overbeck, pre -scanning the slide itself provides a mechanism for the user to select the portions of the array to be scanned. Specifically, Overbeck states:

After the fast pre-scan has been performed, the best focus found from the acquired data, and a relatively crude version of the image, based on prescan data, has been displayed to the operator, the operator selects the portions of the image to be scanned. (p. 33, lines 20-25)

The Appellant submits that modifying Overbeck's slide to have a uniform fluorescent layer, i.e., not the slide itself, would render the pre-scan of Overbeck non-functional for its intended purpose, i.e., to provide an image to the user for the purpose of selecting a portion of the array to be scanned. In other words, it would be impossible for an operator to select a specific region of a pre-scanned slide if something other than the slide itself was pre-scanned.

Therefore, the Appellant submits that there is no suggestion or motivation to make the proposed modification (i.e., scanning a calibration member with a uniform fluorescent layer) and as such, Claims 15-16, 18-21, 27, 33-37 and 43-45 are further distinguished over the asserted teachings of Overbeck.

Claim 17

Claim 17 depends from Claim 16 and as such is patentable over Overbeck for at least the same reasons as discussed above for Claim 16. In addition, Claim 17 further

specifies that the emitted light is the same from each of the detected regions of the calibration member.

As discussed above, Overbeck discloses a method of pre-scanning a microscope slide followed by reading all or a portion of the same slide. Therefore, Overbeck neither teaches nor suggests that the light emitted from the slide is the same from each of the detected regions. Indeed, this is highly unlikely as the pre-scan is performed on the array itself, which by definition has an array of distinct features with varying amounts of associated fluorescent moieties as well as inter-feature areas. This is in contrast to a calibration member having a uniform fluorescent layer from which the emitted light is the same from each of the detected regions of the calibration member.

Accordingly, Claim 17 is further distinguishable over the asserted teachings of Overbeck.

Claims 29 and 47

Claim 29 indirectly depends from Claim 15 and Claim 47 depends from Claim 39 and as such, are patentable over Overbeck for at least the same reasons discussed above for Claims 15 and 39. In addition, Claims 29 and 47 further specify communicating data from reading the array to a remote location.

The Examiner has failed to cite any passage in Overbeck that teaches or suggests communicating data from reading the array to a remote location. As such, the Appellant submits that Claims 29 and 47 are further distinguished over the asserted teachings of Overbeck.

Claims 30 and 48

Independent Claims 30 and 48 are drawn to methods of receiving data representing a result of a reading obtained by the method of Claims 27 and 39, respectively.

In addition to being patentable over Overbeck for the reasons discussed above

with respect to Claims 27 and 39, Overbeck neither teaches nor suggests a method of receiving data representing a result of a reading obtained by the method of Claims 30 or 48. As such, the Appellant submits that Claims 30 and 48 are further distinguished over the asserted teachings of Overbeck.

Given the significant deficiencies in Overbeck in teaching or suggesting each and every element of the claimed invention, the Appellant submits that the Examiner has failed to establish a *prima facie* case of obviousness and respectfully request reversal of this rejection.

II. Claims 38 and 46 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Overbeck (WO 99/47964) and further in view of King et al. (US 5,812,272).

Claims 38 and Claim 46 indirectly depend from Claims 15 and 39, respectively. Both claims specify that the uniform fluorescent layer of the calibration member comprises the fluorescent dyes Cy3 and Cy5.

The Examiner has acknowledged that Overbeck fails to teach using Cy3 and Cy5 as fluorescent labels. The Examiner asserts that King et al. remedies the deficiencies in the teachings of Overbeck by disclosing the fluorescent labels.

However, the Appellant submits that King et al. fail to remedy the fundamental deficiencies of Overbeck as discussed in detail above. Namely, King et al. does not teach or suggest calibrating at least one sensitivity of the detection system from the calibration signals generated from the calibration member and providing a uniform fluorescent layer on the calibration member, much less a uniform fluorescent layer comprising both Cy3 and Cy5.

Accordingly, the combined teachings of Overbeck and King et al. fail to teach or suggest each and every element of the claimed invention. Therefore, the Appellant submits that a *prima facie* case of obviousness has not been established for Claims 38 and 46 and respectfully requests reversal of this rejection.

SUMMARY

I. Claims 15-21, 27, 29-30, 33-37, 39-45 and 47-48 are patentable over Overbeck (WO 99/47964) under 35 U.S.C. 103(a) because the reference fails to teach or suggest at least the element of calibrating at least one sensitivity of the detection system from the calibration signals generated from the calibration member, as is claimed. In addition, Overbeck fails to teach or suggest a calibration member with a uniform fluorescent layer as specified in Claims 15-21, 27, 29-30, 33-37 and 43-45.

II. Claims 38 and 46 are patentable over Overbeck (WO 99/47964) and further in view of King et al. (US 5,812,272) under 35 U.S.C. 103(a) because these references fail to teach or suggest calibrating at least one sensitivity of the detection system from the calibration signals generated from a calibration member and a uniform fluorescent layer comprising two different dyes, Cy3 and Cy5, as is claimed.

RELIEF REQUESTED

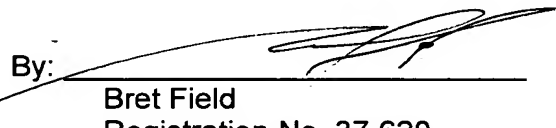
The Appellant respectfully requests that the rejections of Claims 15-21, 27, 29-30, and 33-48 under 35 U.S.C. §103(a) be reversed, and that the application be remanded to the Examiner with instructions to issue a Notice of Allowance.

Respectfully submitted,

Date: 12-13-05

By: 
David C. Scherer, Ph.D.
Registration No. 56,993

Date: 12-13-05

By: 
Bret Field
Registration No. 37,620

AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, Colorado 80537-0599

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CLAIMS APPENDIX

15. A method using a chemical array reader having:

- i) a holder to mount an array and hold the array at a reading position;
- ii) a light system to illuminate a mounted array when at a reading position;
- iii) a detection system having a focal plane, to detect light from different regions across the array emitted in response to the illumination, when at the reading position, and which generates a resulting signal for each of the regions across the array; and

- iv) an autofocus system which detects and reduces offset between the different regions of an array at the reading position and a determined position of the focal plane;

the method comprising:

- a) positioning a calibration member having a uniform fluorescent layer at the reading position so as to receive illumination from the light system and emit light in response thereto, which emitted light is detected by the detection system to generate a resulting calibration signal;

- b) adjusting a position of the calibration member, when in the reading position, relative to the focal plane;

- c) determining the position of the focal plane from the light detected at various adjustments; and

- d) calibrating a sensitivity of the detection system from the detection system signals generated from the calibration member.

16. A method according to claim 15 wherein the focal position is determined based on a variation in detected light amplitude from the same region of the calibration member or from multiple regions of the calibration member from which the detected light is the same when at the focal plane, which variation results from the adjustment of the calibration member relative to the focal plane.

17. A method according to claim 16 wherein the emitted light is the same from each of the detected regions of the calibration member.

18. A method according to claim 15 wherein the position of the calibration member and the holder, relative to the focal plane, are simultaneously adjusted.

19. A method according to claim 15 wherein the detection system detects light at multiple wavelengths from the calibration member or array, when either is at the reading position, and generates a resulting signal for each of multiple detected wavelengths for a region of the calibration member and each of the regions across the array, and wherein the method comprises positioning a calibration member in (a) which emits light at the multiple wavelengths in response to illumination from the light system.

20. A method according to claim 15 wherein the light system illuminates a region and the detection system detects from a region, and the reader additionally comprises a scan system which simultaneously scans the illuminated and detected regions across the different regions of the array when at the reading position.

21. A method according to claim 20 wherein the scan system additionally scans the illuminated and detected regions across different regions of the calibration member when at the reading position, such that the detection system generates resulting signals for each of the different regions across the calibration member, which are used to determine the focal plane position.

27. A method according to claim 15, additionally comprising:

reading an array by positioning the array at the reading position such that the detection system detects light from different regions across the array emitted in response to the illumination, and generates a resulting signal for each of the regions across the array.

29. A method according to claim 27 wherein the data is communicated to a remote location.

30. A method comprising receiving data representing a result of a reading obtained by the method of claim 27.

33. A method according to claim 15 wherein the uniform fluorescent layer of the calibration member is positioned coplanar to the light emitting regions across the array.

34. A method according to claim 33 wherein the calibration member comprises a substrate that is the same as that of the array.

35. A method according to claim 34 wherein the calibration member substrate is positioned coplanar to the array substrate.

36. A method according to claim 15 wherein the uniform fluorescent layer of the calibration member is the same thickness as the light emitting regions across the array.

37. A method according to claim 15 wherein the uniform fluorescent layer of the calibration member comprises more than one fluorescent dye.

38. A method according to claim 37 wherein the uniform fluorescent layer of the calibration member comprises the fluorescent dyes Cy3 and Cy5.

39. A method of using a chemical array reader, the method comprising:

- a) providing a calibration member comprising a substrate with at least one calibrating region thereon;

- b) providing a chemical array comprising a substrate with at least one chemical feature region thereon;

- c) calibrating the chemical array reader using the calibration member by a method comprising:

- i) positioning the calibration member at a reading position of the chemical array reader;

ii) illuminating the calibration member with light from a light system of the chemical array reader;

iii) detecting light emitted from the calibration member in response to the illuminating light with a detection system of the chemical array reader to generate a resulting calibration signal;

iv) adjusting the position of the calibration member relative to the detection system;

v) repeating steps (ii) to (iv) until a focal plane of the detection system can be determined from the calibration signals generated at various adjustments; and

vi) calibrating at least one sensitivity setting of the detection system from the calibration signals generated from the calibration member when positioned at the focal plane of the detection system; and

d) reading the chemical array using the calibrated chemical array reader by the method comprising:

i) positioning the chemical array at the focal plane of the detection system;

ii) detecting light emitted from different regions across the chemical array in response to illuminating the chemical array with light from the light system; and

iii) generating a resulting data signal for each of the detected regions across the array.

40. A method according to claim 39 wherein the calibrating region of the calibration member is positioned coplanar to the chemical feature region on the chemical array.

41. A method according to claim 39 wherein the calibration member comprises a substrate that is the same as that of the chemical array.

42. A method according to claim 39 wherein the calibration member substrate is positioned coplanar to the array substrate.

43. A method according to claim 39 wherein the calibrating region on the calibration member comprises a uniform fluorescent layer.

44. A method according to claim 43 wherein the uniform fluorescent layer of the calibration member is the same thickness as the chemical feature region on the array.

45. A method according to claim 43 wherein the uniform fluorescent layer of the calibration member comprises more than one fluorescent dye.

46. A method according to claim 45 wherein the uniform fluorescent layer of the calibration member comprises the fluorescent dyes Cy3 and Cy5.

47. A method according to claim 39 wherein the data is communicated to a remote location.

48. A method comprising receiving data representing a result of a reading obtained by the method of claim 39.

EVIDENCE APPENDIX

No evidence that qualifies under this heading has been submitted during the prosecution of this application, and as such it is left blank.

RELATED PROCEEDINGS APPENDIX

As stated in the *Related Appeals and Interferences* section above, there are no other appeals or interferences known to Appellant, the undersigned Appellant's representative, or the assignee to whom the inventor assigned his rights in the instant case, which would directly affect or be directly affected by, or have a bearing on the Board's decision in the instant appeal. As such this section is left blank.